

## SSLP113 – Relations of the type RBE3 between a square and discrete

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### Abstract:

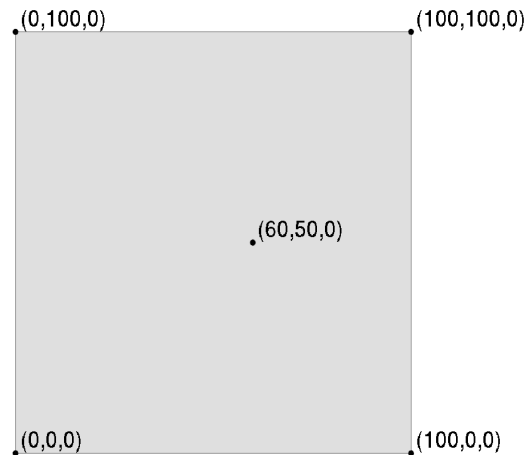
The purpose of this test is to check 2D the relation of the type RBE3 between an element and discrete.

## 1 Problem of reference

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### 1.1 Geometry

One considers a square and a discrete element with the following coordinates.



### 1.2 Properties of the material

$E = 4000000 \text{ MPa}$       Modulus Young  
 $\nu = 0$                   Poisson's ratio

### 1.3 Boundary conditions and loadings

the nodes of the square of coordinates (0,0,0) and (100,0,0) is blocked according to  $DX$ ,  $DY$ .  
The node of the square of coordinates (60,50,0) is blocked according to  $DY$ .  
The node of the cube of coordinates (60,50,0) is subjected to a nodal force  $FX = 100$ .

### 1.4 Initial conditions

Nothing

## 2 Reference solution

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### 2.1 Method of calculating

the reference solution is obtained by software Nastran.

### 2.2 Quantities and results of reference

One notes displacement on various nodes of which the discrete one.

Identification	Value of reference
NOEUD=' N000001 ', NOM_CMP=' DX '	0.000000E+00

Warning : The translation process used on this website is a "Machine Translation". It may be imprecise and inaccurate in whole or in part and is provided as a convenience.

NOEUD=' N000001 ', NOM_CMP=' DY '	0.00000E+00
NOEUD=' N000002 ', NOM_CMP=' DX '	1.25000E-05
NOEUD=' N000002 ', NOM_CMP=' DY '	0.00000E+00
NOEUD=' N000003 ', NOM_CMP=' DX '	1.25000E-05
NOEUD=' N000003 ', NOM_CMP=' DY '	0.00000E+00
NOEUD=' N000004 ', NOM_CMP=' DX '	0.00000E+00
NOEUD=' N000004 ', NOM_CMP=' DY '	0.00000E+00
NOEUD=' N000005 ', NOM_CMP=' DX '	6.25000E-06
NOEUD=' N000005 ', NOM_CMP=' DY '	0.00000E+00

## 2.3 Uncertainties on the solution

No

## 3 Modelization A

### 3.1 Characteristic of the modelization

One uses a linear relation of type RBE3.

### 3.2 Characteristics of the mesh

The mesh contains 9 nodes, 1 elements of the type POI1, 1 element of type HEXA8.

### 3.3 Quantities tested and results

Identification	Value of reference	Tolerance
NOEUD=' N000001 ', NOM_CMP=' DX '	0.00000E+00	1e-10
NOEUD=' N000001 ', NOM_CMP=' DY '	0.00000E+00	1e-10
NOEUD=' N000001 ', NOM_CMP=' DX '	1.25000E-05	1e-4%
NOEUD=' N000002 ', NOM_CMP=' DX '	0.00000E+00	1e-10
NOEUD=' N000002 ', NOM_CMP=' DY '	1.25000E-05	2nd-4%
NOEUD=' N000002 ', NOM_CMP=' DX '	0.00000E+00	1e-10
NOEUD=' N000002 ', NOM_CMP=' DY '	0.00000E+00	1e-10
NOEUD=' N000003 ', NOM_CMP=' DX '	0.00000E+00	1e-10
NOEUD=' N000003 ', NOM_CMP=' DY '	6.25000E-06	1e-4%
NOEUD=' N000003 ', NOM_CMP=' DX '	0.00000E+00	1e-10
NOEUD=' N000004 ', NOM_CMP=' DX '		
NOEUD=' N000004 ', NOM_CMP=' DY '		
NOEUD=' N000005 ', NOM_CMP=' DX '		
NOEUD=' N000005 ', NOM_CMP=' DY '		

## 4 Summary of the results

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the results are in very good agreement with software Nastran.